DOCUMENT RESUME

ED 063 794 EM 010 010

AUTHOR Bank, Adrianne
TITLE The Product as Change Agent: The Process of Development.
INSTITUTION Institute for Development of Educational Activities, Dayton, Ohio.
PUB DATE Apr 72
NOTE 10p.; Paper presented at the American Educational Research Association Annual Convention (Chicago, Illinois, April 3-7, 1972)

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS *Behavioral Objectives; Change Agents; Educational Innovation; *Group Relations; *Instructional Design; Instructional Materials; *Program Development; Program Evaluation; Summative Evaluation; Systems Approach; *Teacher Administrator Relationship
IDENTIFIERS *Product Development

ABSTRACT

Instructional product development--the purpose of which has been to create materials which produce in an identified population of users demonstrable changes in behavior, in accordance with prespecified and specific objectives--generally adheres to a pattern which includes planning, formulating, prototyping measures and materials, field testing, revising and retesting, and summative evaluation. To the project staff at the Institute for Development of Educational Activities, Inc. (IDEA), this cycle seemed worthwhile to explore in terms of producing materials which would enable groups to improve interpersonal problem-solving skills. Thus, IDEA developed materials designed to help teachers and principal work together more collaboratively and systematically in solving school problems. Field tests of the materials indicated the need for revisions, and evaluations of the program are currently formative. However, the use of product development strategies for organizational development has proven to be of value in serving as a research tool, in forcing clarification of desired outcomes and principles used to attain them, and in expanding our knowledge base with its empirical approach. (SH)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY

ED 063794

THE PRODUCT AS CHANGE AGENT: THE PROCESS OF DEVELOPMENT*

by

Adrianne Bank

Institute for Development of Educational Activities, Inc.

Summary: Recent emphasis on insuring the quality of instructional materials for students in terms of predictable learning outcomes has resulted in attention to systematic procedures for developing such materials. A modification of these systematic procedures was used by the staff of the Institute for Development of Educational Activities Inc. (|I|D|E|A|) to develop materials for teachers to influence the way in which they worked together to solve problems. This paper describes the process by which these materials were developed and discusses some of the implications which product development strategies may have for the field of organizational development.

Introduction

Within the past ten years increasing attention has been paid to a sub-speciality within the field of education called instructional product development. Interest in instructional product development was stimulated by the many curriculum projects during the sixties. Some of these projects tried to translate current knowledge in disciplines such as mathematics, science, economics, history as well as scholarly methodology into materials which would be effective in the classroom. Further impetus for materials development has come from federally funded regional laboratories which are presently trying to package for school people - whether students, teachers or administrators - research based knowledge in a maximally useful form.

The purpose of product development efforts has been to create materials which produce in an identified population of users demonstrable changes in behavior, in accord-

* Paper presented at the 1972 conference of the American Educational Research Association in Chicago, Illinois.

EM 010 010

ance with prespecified and specific objectives. In order to do this, product developers incorporate into their first draft materials instructional principles which research has shown to have a high probability of facilitating learning. However, because there is no conclusive way to predict the effects of these principles in actual practice, product developers then test their materials with representative samples of users, and revise them in accordance with this empirical data. Product developers, through successive trial and revision cycles, try to produce instructional artifacts - books, films, tapes, exercises - which take responsibility for learner achievement of given objectives.

To date, most product development efforts have been concerned with cognitive outcomes for individuals or collections of individuals. Current development strategy reflects this emphasis on individual learning.

The Product Development Cycle

Although product development agencies differ in the way they conceptualize the stages of development, most adhere to a pattern which includes planning, formulating, prototyping measures and materials, field testing, revising and retesting, and summative evaluation.[1]

During the planning stage, the need for the product is ascertained through review of presently available materials and surveys of potential consumers as well as of experts in the field. During the formulation stage, the broad areas of content are defined and within those areas the most economical concepts are identified. Specifications describing the objectives of the product as well as the measures for determining if the objectives have been achieved are written. The population for whom the product is intended is described and the entry skills which learners must already posess in order to begin using the product are identified.

After the formulation stage, prototype materials, procedures and measures are developed according to specification and tried out with small samples of learners. Based on data from this initial tryout, materials and measures are revised and tried out again, with larger groups of learners and under conditions more nearly approximating those under which the product will be used. Supporting conditions essential to the installation of the product are considered. Adjunct materials such as instructor's manuals are developed; or necessary arrangements such as release time for teacher training are made. Additional revisions are made if necessary and the product is ready to be distributed. Finally, summative data describing the functioning of the product in its intended setting and the learner outcomes associated with the use of the product are collected, and made available so that potential users can decide if the product is appropriate for their needs. The defining characteristic of the product development approach, then, is its emphasis on learner achievement as indicated by empirical evidence.

This development cycle of sequential steps for producing materials which enable individual learners to acquire cognitive skills seemed worthwhile to explore in terms of producing materials which would enable groups of people to improve interpersonal problem solving skills. The project staff at the Institute for Development of Educational Activities, Inc. (|I|D|E|A|) used these procedures or a modification of them to create a set of materials which would help school staffs become more effective in solving problems.

Developing the Problem Solving School Materials

For several years prior to the beginning of this project, members of the |I|D|E|A| staff had been engaged in a study of change in eighteen elementary schools in Southern California joined together in a League of Cooperating Schools. The tentative results of

this study supports other research[2] which indicates that it is not usual practice for teachers within a school to collaboratively and systematically engage in dialogue about either school-level problems or classroom-level problems. The assumption underlying the work of the League and of this project was that if school staffs could become better able to collaborate with one another and to systematically identify, analyze and generate alternative solutions to problems, the educational function of the school would be performed more effectively.

The limited number of consultants available to the schools and the widespread interest in schools in staff development activities seemed to indicate that an exploration of the way in which products could bring about changes in the behavior of school staffs was justified.

In formulating the product, then, we at |I|D|E|A| agreed that the appropriate audience for the materials was the entire staff of the elementary school. The general purpose of the materials was to enable teachers and principal to work together more collaboratively and more systematically in solving school level and class level problems. It became clear, however, in identifying the content for the materials that there were differences as well as similarities in school and classroom problem solving; and so two sets of materials were designed to be used either concurrently or consecutively.*

---

*The materials for school level problem solving are described in a handbook distributed to teachers, principal, and to members of the Development Team who had been selected by the staff to coordinate the activities of the program. The handbook includes guidelines for three meetings at which team-building activities are conducted (some of these are guided by taped instructions). The staff then engages in seven additional activities for problem identification, diagnosis, development of alternative solutions, evaluation of alternatives, implementation and evaluation of group effectiveness. The classroom problem solving materials are contained in a set of nine programed booklets which deal with problem definition, information collection, alternative strategies and evaluation. They are to be read individually, then discussed in a small group of teachers with similar problems. Suggestions are made for practice in the classroom.

The principles used in the development of the materials were derived both from learning theory and organizational development theory. For instance, the materials call for active participation by the entire staff in the program both during meetings and between meetings. Some activities were designed for total staff meetings, some for subgroups within a total staff meeting, others for individual use. Various techniques for participant monitoring of activities and for feeding back the results of that monitoring to the group are provided. There are numerous opportunities for graduated practice built into the products. For instance, the classroom booklets ask teachers to respond in writing to hypothetical situations in terms of the principles introduced in the booklets, then to respond in writing to a situation within their own classroom, then to discuss their responses with a small group of teachers, and finally to practice such a procedure within their own classroom.

During the formulation stage of product development, we found it difficult to proceed in the systematic manner we had planned. The two areas which caused the most trouble were the definition of school entry behaviors deemed prerequisite for using the program, and the specification of group outcomes in measurable terms. Although we were aware that products by themselves were not powerful change agents, and that their success depended upon the existence of certain pre-conditions such as adequate motivation on the part of the staff, willing leadership on the part of the principal, and the capabilities of the individuals selected as Development Team members, we were unable at that time to devise instruments to differentiate between schools likely to succeed with the materials and those likely to fail. We did insist that principals involve their staffs in the decision about participating in the |I|D|E|A| study; and this turned out to be a significant variable. Those schools in which teachers did not

actively participate in the decision to become involved with |I|D|E|A|, or where there was an initial misunderstanding about the nature of the program either did not start, or dropped out early in the program.

The difficulty with specifying behavioral outcomes for groups using the materials can be traced to two factors. First, there was genuine reluctance on the part of many members of the project staff to prescribe outcomes at all. Specifying objectives in precise and measurable language seemed to imply that we were imposing value judgments on school staffs by designing exercises and materials which were closed ended. Second, staff members perceived difficulties in establishing a logical relationship between a specific skill objective such as "teachers will be able to engage in brainstorming activities to generate several alternative solutions to a problem" and the larger general objectives of improvement in collaborative and systematic problem solving activities.

We therefore postponed the specification of behavioral outcomes until after the development of the materials and the first field test stage.* Instead of specifying outcomes, we selected activities which, in the literature, seemed to help people

---

*Samples of current behavioral outcomes include:

There will be an increase in openness, trust, and participatory decision-making among staff members (indicated by self-report questionnaires).

Staff members will be able to use the following systematic procedures in reaching a solution to a problem: force-field analysis, brainstorming, evaluating alternatives, choosing a course of action, implementing a decision (indicated by observation data).

Teachers will be able to describe a given classroom problem in terms of the discrepancy between teacher expectations and pupil behaviors (indicated by paper and pencil items as well as reports of small group discussion).

Teachers will be able to use the strategies of establishing no-lose relationship, reinforcement, adapting the task, changing the context, in their classrooms (as indicated by paper and pencil items as well as self reports).

acquire the kinds of behaviors we thought would be useful. We then packaged these activities in the form of guidelines for meetings, or in the form of exercises, and tried them out in schools. Based on observation by staff members and on self-report questionnaires filled out by teachers, we tried to eliminate the "noise" and refine the procedures so that they would efficiently affect people's behaviors.

The first field test of the product was conducted activity by activity. The full staff team building and problem solving exercises were introduced into schools one at a time. Evaluations by participants as well as observations by staff members resulted in extensive revision. The classroom level booklets were read by individual teachers and their reactions were carefully noted by the developer who sat with them in a "counselling interview."[3] The booklets then were distributed in schools, and read by teachers at their own rate. Post-test data as well as evaluative judgment data led to revisions.

The entire program has been effect in five schools during the current school year, and there is continous monitoring of school progress by the |I|D|E|A| staff. This year's evaluation is still formative in that it will lead to further revisions in form, content, sequence, instructions, etc.*

Summative evaluation concerning the effect of the entire program on collaborative and systematic problem solving abilities of school staffs will have to await another year of testing. Although it is still too early to reach conclusions about the effectiveness of this product in bringing about staff development in public school settings,

---

* A more detailed description of the formative evaluation procedures can be found in two papers presented at the California Educational Research Association. San Diego, California, November, 1971, "The Problem Solving School: Product Development and Formative Evaluation" by Adrianne Bank and "Team Building Activities: Purposes, Description and School Reactions" by Roger Rasmussen.

some implications of the product development process for organizational development can be noted.

Implications of Product Development Strategies for Organizational Development

There are obviously serious limitations to the product as change agent. They are inherent in the medium itself which cannot adapt to the specific needs of organizational systems in the flexible and creative ways that consultants can. Materials are limited to their capacity to sustain motivation in groups of people, and in their power to reveal to people the complexities of their interpersonal functioning. Materials cannot take the place of leadership.

Products, however, have advantages for organizational development in at least two areas. They can serve as an important research tool. Because they are replicable, and can be used in exactly the same form in a variety of situations, they can help to identify important differences among organizational settings. Because selected variables such as method of presentation, time of presentation, type of instructions can be manipulated under controlled conditions, more precise information about the effects of specific interventions in organizationl settings can be obtained. Investigation concerning the limits of such techniques as videotape analysis and feedback, or of group process exercises can be made, so that conclusions can be reached concerning the most appropriate use of limited consultant resources. The possible dangers of do-it-yourself organizational development efforts can be more clearly analyzed and described.

The product development process itself forces clarification of the desired outcomes and the principles used to achieve them. Although it may be appropriate to delay or avoid altogether specifying behavioral outcomes for an organizational development effort,

and although it may be undesirable or impossible to construct measures for ascertaining the long range effectiveness of intervention activities, the demands of the product development cycle that such decisions be considered is salutary. In a time when the supply of knowledgeable organizational development consultants is limited and the demand is great, it seems inevitable that replicable materials will be developed to extend their expertise. These materials can build upon and expand the knowledge base within the field. If emphasis is correctly placed on empirical development and testing procedures and if this data is made available to consumer schools, informed decisions can be made by school staffs about the direction in which they want to proceed.

Much time, energy and manpower is required to explore the ways in which products and product development can contribute to the theory and practice of organizational development. We at |I|D|E|A| know this only too well.

1. For more extensive treatment of the product development cycle, see Popham, W. James and Baker, Eva L. "Rules for the Development of Instructional Products." Southwest Regional Laboratory for Educational Research and Development, 1967.

2. Goodlad, John I. and Klein, Frances M. Behind the Classroom Door, Worthington, Ohio. Charles A. Jones, 1970.

3. Markle, Susan. "Empirical Testing of Programs" Programed Instruction, The sixty-sixth yearbook of the National Society for the Study of Education, Part II, University of Chicago Press, 1967, p. 104-138.